

WHAT IS CLAIMED IS:

1. A dye-sensitized solar cell comprising:
a semiconductor electrode containing a dye and
carboxylic compound, the dye and carboxylic compound
5 being carried on a surface of the semiconductor
electrode;
a counter electrode; and
an electrolyte composition provided between the
semiconductor electrode and the counter electrode, and
10 containing an electrolyte that contains iodine and
molten salt of iodide.
2. The dye-sensitized solar cell according to
claim 1, wherein the electrolyte composition further
contains a gelling agent.
- 15 3. The dye-sensitized solar cell according to
claim 2, wherein the gelling agent includes polyvinyl
pyridine.
4. The dye-sensitized solar cell according to
claim 1, wherein the electrolyte composition further
20 contains inorganic salt of iodide.
5. The dye-sensitized solar cell according to
claim 1, wherein the electrolyte composition further
contains a viscosity-lowering agent containing at least
one compound selected from the group consisting of salt
25 of nitrogen-containing heterocyclic compound (excluding
halide of nitrogen-containing heterocyclic compound)
and salt of aliphatic compound.

6. The dye-sensitized solar cell according to claim 1, wherein the molten salt of iodide includes iodide of nitrogen-containing heterocyclic compound.

5 7. The dye-sensitized solar cell according to claim 1, wherein the molten salt of iodide includes 1-methyl-3-propyl imidazolium iodide.

8. The dye-sensitized solar cell according to claim 1, wherein the carboxylic compound includes at least one acid selected from the group consisting of acetic acid, propionic acid and butyric acid.

9. The dye-sensitized solar cell according to claim 1, wherein the electrolyte further contains water.

10 10. The dye-sensitized solar cell according to claim 9, the content of water in the electrolyte is in a range from 0.01 wt.% to 10 wt.%.

11. The dye-sensitized solar cell according to claim 1, wherein the semiconductor electrode contains titanium oxide particles.

20 12. The dye-sensitized solar cell according to claim 1, wherein the electrolyte composition is substantially in the form of a liquid or a gel.